[Visual programming tool and execution environment for developing computer software applications]

Abstract of Disclosure

A visual programming tool and execution environment, based on pre-developed object classes including an action class and an action list class, implemented on a computer having persistent storage, a display screen and one or more input devices which a user employs to command the said programming tool to develop software applications. The said pre-developed object classes which are used by the said programming tool support property-method-event model. In response to input from the user, the said programming tool creates object class instances from the said pre-developed object classes and graphically presents the said object class instances on the display screen; in response to input from the user, instances of object classes are manipulated graphically to form visual presentations of the software application; in response to input from the user, each property of each instance of object class is set; in response to input from the user, each event of each object class instance may be assigned an ordered action list as the event handler; each action in the said action list is formed by 1)an action performer which is an existing instance of object class; 2)an action method which is one of the single or plurality of methods of the said action performer; 3)action data if the action method requires it; in response to input from the user, each said action in the said action list is created by steps of 1)picking an instance of object class as the action performer from the existing instances of object classes presented to the user in an organized manner; 2)picking a method as the action method from the supported methods of the said picked instance of object class, the said methods are presented to the user on the display screen for the user to pick; 3)picking/specifying data for the said picked method via one or more dialog-

boxes, if action data is required for the said picked action method. The said programming tool saves said object class instances and said action lists, together with the relationship between action lists and events of the said object class instances, to the computer persistent storage. What the said programming tool saves on the computer persistent storage form the software application developed by the user using the said programming tool. To execute the software application, the said programming tool reads back from the computer persistent storage the said saved object class instances, action lists and the relationship between action lists and events of the object class instances; creates and display the object class instances; responses to each event by sequentially executing each action in the said action list assigned to the said event; the said programming tool executes each action by the following steps 1)locating the object class instance which is assigned as the action performer for the action; 2)signaling to the said action performer which action method is specified for the action; 3)if the method data is specified for the said method of the said located object class instance, the method data is passed to the said object class instance as well; 4)the said located object class instance carries out the said action method.

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